Information Systems Development Support (ISDS) Contract
Contract Work Order (CWO) Implementation Plan

for

CWO 24 - DSN Automated Scheduling System

Developed by
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Under

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Foreword

This is the top-level CWO document used for defining and controlling the effort, organizational structure, management authority and responsibility, and resource allocations for the CWO. This is the baseline CWO technical and management document developed under the guidelines set forth in DRD MA005 and in the ISDS Program Management Plan and supported by the ISDS methodology.

The **order of precedence** is the ISDS contract and attachments, then the ISDS Project Management Plan and its supporting procedures, and then this plan. The ISDS Project Management Plan and supporting procedures can be explicitly waived with the concurrence of JPL and ISDS Team management. Such actions and decisions are documented in Section 11, Deviations, Exceptions, and Waivers.

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1.   Introduction

1.1   Background

In order to accommodate an increased demand for the Deep Space Network's resources while simultaneously decreasing the manual work required to do so, an end-to-end scheduling system is being developed. This system must be able to handle the increased flexibility provided by the addition of new resources, such as the 34-meter subnet, manage the transition to an environment involving integrated Deep Space and Earth Orbiting operations, and address the rapidly changing mission support requirements. Automated and interactive scheduling tools and technologies are emerging that will enable the DSN to produce higher density schedules at a lower cost. Tools such as the Operation Mission Planner (OMP-26), which was developed for the 26-meter subnet, provide the ability to perform reactive scheduling by providing a rapid analysis of the impact of a scheduling change on spacecraft operations and on the DSN resources. The development of an end-to-end scheduling system must be carefully integrated with the other functions of the DSN's Network Preparation process. Each function of the scheduling process must be identified, as well as the information that is needed to support the reasoning at each step of the process. Data exchange standards must be established for providing inputs to the scheduler, and the rules for identifying and resolving scheduling conflicts must be developed. In support of the goal of developing an automated scheduling system for the DSN, this statement of work focuses initially on implementing the DSN Network Preparation processes that produce and maintain a 7-day schedule of the network's resources by the DSN's Real-Time area.

1.2   Purpose

Adapt Operation Mission Planner (OMP-26M) so that it can be used to interactively maintain the DSN's 7-day schedule in the Real-Time Area and assist in maintaining the automated scheduler (OMP-26 version 2.0) for the 26M subnetwork.

2.   SOW & Deliverables

2.1   SOW

Description of Work

The contractor shall adapt Operation Mission Planner so that it can be used to interactively maintain the DSN's 7-day schedule in the Real_Time Area and assist in maintaining the automated scheduler for the 26M subnetwork.

Statement of Work Specifics

1. Add models of all the DSN antennas and equipment that has a bearing on producing a DSN schedule. This will include all the antennas, SPCs, antenna & SPC equipment that are scheduled by the Real Time Area. OMP will also read in the Configuration file which defines equipment availability at each antenna & SCP